PTO/SB/08a (08-03)

Approved for use through 07/31/2008. OMB 0851-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Supplemental for form 1449A/PTO

•.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Application Number

10/708,056

Filing Date

First Named Inventor

Art Unit

Examiner Name

28 25

Examiner Name

28 4007 000004

 (use as many sheets as necessary)
 Examiner Name
 Siek V.

 Sheet
 1
 of
 3
 Attomey Docket Number
 361007-000031

Examiner	Cite	Document Number	Publicati	ATENT DOC	Name of Patentee or		Pages, Columns, Lines, Where	
Initials'	No. ¹	Number-Kind Code ² (if known)	MM-DD		pplicant of Cited Document		Relevant Passages or Relevant Figures Appear	
1/5	A	US- 6,131,078	10/10/	2000	Plaisted			
•		US-						
		US-					,	
		US-						
		US-						
<u>-</u> .		US-						
		US-			<u> </u>			
-		US-	1					
		US-						
		US-						
		US-						
		US-			<u> </u>			
		US-	-					
		US-						
		US-						
		US-						
		US-						
		US-						
			FORFIGI	I PATENT D	OCUMENTS			
		Foreign Patent Docum					Pages, Columns, Lines,	Γ
Examiner	Cite			Publication Date Name of Patentee o			Where Relevant Passages	1
Initials'	No. ¹	Country Code ³ -Number ⁴ -Kind Code	(il known)	MM-DD-YYY	/ Applicant of Cited Doc	ument	or Relevant Figures Appear	⊬
 —								-
								lacksquare
· <u>.</u> , - , , , ,			<u> </u>					
	-1	A/						
Examiner Signature		VUTHE SIEK			Date		6/27/06	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO				Complete if Known				
				Application Number	10/708,056	·		
	INFORMATION DISC	LOS	URE	Filing Date	February 5, 2004			
	STATEMENT BY AP			First Named Inventor	Edmund M. Clarke			
				Art Unit	2825			
	(use as many sheets as n	ecessa.	ry)	Examiner Name				
Sheet	2	of	3	Attorney Docket Number	361007-000031			

		NON PATENT LITERATURE DOCUMENTS
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
VS	В	Carl Pixley, Guest Editor's Introduction: Formal Verification of Commercial Integrated Circuits. IEEE Design & Test of Computers, 18(4):4-5, 2001.
VS.	С	Armin Biere, Alessandro Cimatti, Edmund M. Clarke, and Yunshan Yhu. Symbolic model checking without BDDs. In Tools and Algorithms for Construction and Analysis of Systems, pages 193-207, 1999.
VS	D	A. Biere, E. Clarke, R. Raimi, and Y. Zhu. Verifying safety properties of a Power PC TM microprocessor using symbolic model checking without BDDs. In N. Halbwachs and D. Peled, editors, Proceedings of the 11 th International Conference on Computer Aided Verification (CAB 99), Lecture Notes in Computer Science. Springer Verlag, 1999.
V5	E	A. Biere, A.Cimatti, E.M. Clarke, M. Fujita, and Y. Zhu. Symbolic model checking using SAT procedures instead of BDDs. In Design Automation Conference (DAC '99), 1999.
VS	F	Joao P. Marques-Silva and Karem A. Sakallah. GRASP – A New Search Algorithm for Satisfiability. In Proceedings of IEEE/ACM International Conference on Computer-Aided Design, pages 220-227, November 1996.
	G	Matthew W. Moskewicz, Conor F. Madigan, Ying Zhao, Lintao Zhang, and Sharad Malik. Chaff: Engineering an efficient SAT solver. In Proceedings of the 38 th Design Automation Conference (DAC '01), June 2001.
VS	н	D. Kroening and O. Strichman. Efficient computation of recurrence diameters. In Proceedings of the Fourth International Conference on Verification, Model Checking and Abstract Interpretation. Springer, 2003. To appear.
\(\>	1	O. Shtrichman. Tuning SAT checkers for bounded model checking. In E.A. Emerson and A.P. Sistla, editors, Proceedings of the 12 th International Conference on Computer Aided Verification (CAV 2000), Lecture Notes in Computer Science. Springer Verlag, 2000.
VS	J	Fady Copty, Limor Fix, Ranan Fraer, Enrico Giunchiglia, Gila Kamhi, Armando Tacchella, and Moshe Y. Vardi. Benefits of bounded model checking at an industrial setting. In Gerard Berry, Hubert Comon, and Alain Finkel, editors, Proceedings of the 13 th International Conference on Computer Aided Verification (CAV 2001), number 2102 In Lecture Notes in Computer Science, pages 436-453. Springer Verlag, 2001.
iK	κ.	Per Bjesse, Tim Leonard, and Abdel Mokkedem. Finding bugs in an Alpha microprocessor using satisflability solvers. In Gerard Berry, Hubert Comon, and Alain Finkel, editors, Proceedings of the 13 th International Conference on Computer Aided Verification (CAV 2001), number 2102 in Lecture Notes in Computer Science, pages 454-464. Springer Verlad, 2001.

Examiner	111.511-	SILV	Date	6/2/2-1-1
Signature	VWIHE	SIER	Considered	9~7/06

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The Information is required to obtain or retain a benefit by the public which is to

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO			Complete if Known				
		Application Number	10/708,056				
	INFORMATION DI	SCI OSURE	Filing Date	February 5, 2004			
	STATEMENT BY		First Named Inventor	Edmund M. Clarke			
,			Art Unit	2825			
	(use as many sheets a	s necessary)	Examiner Name				
Sheet	3	of 3	Attorney Docket Number	361007-000031			

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
√7	L	Luc Semeria, Andrew Seawright, Renu Mehra, Daniel Ng, Arjuna Ekanayake, and Barry Pangrle. RTL C-based methodology for designing and verifying a multi-threaded processor. In Proc. Of the 39 th Design-Automation Conference ACM Press, 2002.	-
V5	М	I. Page. Constructing Hardware-Software Systems from a Single Description. Journal of VLSI Signal Processing, 1291):87-107, 1996.	
VS	N	A. Pnueli, M. Siegel, and O. Shtrichman. The code validation tool (CVT) – automatic verification of a compilation process. Int. Journal of Software Tools for Technology Transfer (STTT), 2(2):192-201, 1998.	
V\$	0	R. Cytron, J. Ferrante, B.K. Rosen, M.N. Wegman, and F.K. Zadeck. An efficient method of computing static single assignment form. In Proceedings of the 16 th ACM SIGPLAN-SIGACT symposium on Principles of programming languages, pages 25-35. ACM Press, 1989.	
V S .	P	David W. Currie, Alan J. Hu, and Sreeranga Rajan. Automatic formal verification of dsp software. In Proceedings of the 37 th Design Automation Conference (DAC 2000), pages 130-135. ACM Press, 2000.	
vS	Q	Kiyoharu Hamaguchi. Symbolic simulation heuristics for high-level design descriptions with uninterpreted functions. In International Workshop on High-Level Design, Validation, and Test, pages 25-30. IEEE, 2001.	
\ \$	R	C. Blank, H. Eveking, J. Levihn, and G. Ritter. Symbolic simulation techniques – state of the art and applications. In International Workshop on High-Level Design, Validation, and Test, pages 45-50. IEEE, 2001.	
hair en anna ann an ann an ann an ann an ann an a	S	Apt., Krzysztof R. Logics and Models of Concurrent Systems, NATO AGI Series, Series F: Computer and System Sciences, Vol. 13. (No document)	
-			
		·	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional). Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:

Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

PTO/SB/08a (07-05)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE Index the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

MAR 0 6 2006

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

2

(Use as many sheets as necessary)
Sheet 1 of

Application Number 10/708,056
Filing Date February 5, 2004
First Named Inventor Edmund M. Clarke
Art Unit 2825
Examiner Name Not Assigned
Attorney Docket Number 361007-000031

Examiner Initials'	Cite No.1	Document Numbe			tion Date D-YYYY		ame of Patentee or cant of Cited Document		Pages, Columns, Lines, Where Relevant Passages or Relevant	
		Number-Kind Code ² (if known) US-				-		-	Figures Appear	
						-				
<u></u>		US-					/			
		US-				-				_
<u> </u>		US-					·	=	•	
		US-							,	
		US-						<u> </u>		
		US-								
		US-								
		US-			/					
		US-								
		US-								•
		US-			· · · · · · · · · · · · · · · · · · ·					
		US-								_
		US-								_
-		US-						<u>, , </u>		.
		US-	1							
		US-			-					
_		US-								
				FOREIG	N PATEN	T DOC	UMENTS			
Examiner	Cite	Foreign Patent		ent	Publication	n Date	Name of Patentee or		Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
Initials'	No. ¹	Country Code ³ Number ⁴ Kin	d Code ⁵ (if known)	MM-DD-)	/	Applicant of Cited Docum	nent	or Relevant Figures Appear	

Examiner Signature	NUTHE SIEK	Date Considered	6/27/06	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of Information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

PTO/SB/08b (07-05)

Approved for use through 06/30/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

MAR 0 6 2006 Under the Papayvork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Complete If Known rm 1449B/PTO 10/708,056 Application Number February 5, 2004 Filing Date INFORMATION DISCLOSURE Edmund M. Clarke First Named Inventor STATEMENT BY APPLICANT 2825 Art Unit **Not Assigned** Examiner Name (Use as many sheets as necessary) Attorney Docket Number 361007-000031 2 2 Sheet

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	τ²
VS	Α	CLARKE, Edmund M. Jr., et al., Model Checking, (1999) United States, 33 pages,	
			L
Examiner		UNTHE SIEK Date Considered 6/24/06	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.